

**DRAFT 6/15/12**

**Application No.11-52-0075-P**

***Finding of Fact***

The Michigan Department of Environmental Quality (MDEQ) has initiated review of permit application # 11-52-0075-P

The application was submitted under authority of:

Part 301, Inland Lakes and Streams, Public Act 451 of PA 1994.

Part 303, Wetland Protection, Public Act 451 of PA 1994.

Part 31, Floodplain Regulatory Authority, found in Water Resources Protection, of Natural Resources and Environmental Protection Act, 1994 PA 451 as amended.

After due consideration of the permit application, on-site investigation, and review of other pertinent materials, the MDEQ finds:

- The Marquette County Road Commission (CRC) is the applicant for the proposed road construction project, referenced as CR-595. Within the application for permit, the CRC describes the purpose of the project as:

*To construct a primary county north-south road that 1) connects and improves emergency, commercial, industrial and recreational access to a somewhat isolated but key industrial, commercial and recreational area in northwest Marquette County to US-41; and 2) reduces truck travel from this area through Marquette County population centers.*

- The proposed road construction would directly impact ~~256.84~~ 06 acres of wetlands, involve 22 stream crossings, 7 of which would be new crossings where there is no existing road, and involve activities within state regulated floodplain areas of existing streams.
- MDEQ Permits are required for the project under Part 303, Wetland Protection, Part 301, Inland Lakes and Streams and the Floodplain Regulatory Authority of Part 31 of the Natural Resources and Environmental Protection Act of 1994, as amended (NREPA).
- The proposed road construction would directly impact at least one listed species of threatened or endangered species and . requiring a Part 365 permit from the Michigan Department of Natural Resources (MDNR).
- The MDEQ received the application on October 7, 2011, considered the application administratively complete on January 17, 2012, issued a Public

Notice for the application for permit on January 23, 2012 and held a Public Hearing on February 21, 2012. The "Project Use and Alternatives" as well as the "Alternatives Analysis/Project Assessment" sections included with application serve as the alternatives analysis required by Part 303. In response to the MDEQ's March 13, 2012 request, additional project information was submitted by the applicant on April 12, May 7, May 21 and May 28, 2012. MDEQ is presently waiting for the applicant to submit the following additional information:

- ~~o Information regarding impacts to designated S-3 wetlands (ranking by Michigan Natural Features Inventory for wetlands which are vulnerable to extirpation in Michigan).~~
  - o Revised draft wetland and stream mitigation proposals.
  - o Submittal of an updated application incorporating all revisions and information requested in the March 13, 2012 MDEQ letter and submitted by the applicant.
- Project information provided by the applicant indicates that the proposed CR-595 route is 21.4 miles long and will cost an estimated \$85 million.
- With the original submittal of the application, the applicant determined that the Peshekee, Dishno, and 550 alternatives that were initially considered either did not meet the project purpose and need or were not feasible and prudent. The MDEQ concurs with this conclusion.
- The applicant eliminated two alternatives because they considered the alternatives as not being prudent. The Mulligan East High alternative is estimated as being approximately 48 percent more costly than the proposed route. The Mulligan East High April 2012 alternative is 23.4 miles long at an estimated cost of \$131 million, with wetland impacts estimated at 15.7 acres and would involve 14 stream crossings. The Mulligan West alternative cannot avoid impacting a Nature Conservancy conservation easement. The Mulligan West January 2012 version is 25.6 miles long with an estimated cost of \$78 million, with wetland impacts of 10.45 acres and 18 stream crossings. The MDEQ concurs with the elimination of the above alternatives.
- The Red Road/CR510 January 2012 version is 39.9 miles long with an estimated cost of \$113 million, approximately 33 % higher cost (both including maintenance costs) than CRC's preferred CR 595 alternative. The wetland impacts are estimated at 18.3 acres with 34 stream crossings, 5 of which would be new stream crossings. The applicant claims that this alternative does not meet the project purpose and is not feasible or not prudent because: 1) it does

not substantially improve emergency, commercial, and recreational access to northwest Marquette County (see attached map); 2) the route is 19.9 miles (actually 18.5 miles) longer than the proposed CR 595 route. The DEQ has concurred. See attachment 1.

~~A revised Red Road/CR 510 route was also included as an alternate route in the April 12, 2012 submittal. The applicant indicates that the revised route has additional stream crossings, higher wetland impacts, more miles, and higher cost than the January 2012 version. This alternate route was looked at by the applicant to avoid recreational residences and relocate the Dead River crossing to a less flood prone area. If the applicant intends to further pursue this revision, additional supporting documentation is needed.~~

~~The cost differential between the proposed CR 595 route (\$85 million) and the Red Road/CR510 alternative (\$113 million) may be reduced if additional available methods to minimize detriments to aquatic resources are required to be incorporated for the CR 595 route. For example, employing a method to span a sensitive wetland area or increasing the span of a stream crossing and shortening the enclosure length to allow for improved wildlife and aquatic organism passage would be within the range of typical costs for a road that spans another road or other obstacle.~~

~~It is unknown if similar measures would be needed for the Red Road /CR 510 alternative. The Red Road/CR 510 alternative has less impact to wetland aquatic resources and fewer new stream crossings. The Red Road/CR510 alternative has more existing stream crossings which would be upgraded than the proposed CR 595 route. MDEQ estimates that there would be less overall wetland impact, and the fragmentation of aquatic habitat would be less significant than the CR 595 route, since the Red Road/CR 510 alternative route is comprised of existing roads.~~

~~The MDEQ has not eliminated the Red Road/CR510 route as a less damaging feasible and prudent alternative to the proposed route.~~

### Part 303: WETLAND PROTECTION

Legislative findings as defined by sections 30302(1) of Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act 1994 PA 45, are as follows:

Section 30302(1) The Legislature finds that:

- (a) Wetland conservation is a matter of State concern since a wetland of 1 county may be affected by acts on a river, lake, stream, or wetland of other counties.

***(Finding) The proposed development would impact wetlands and streams in four watersheds located in Baraga and Marquette Counties. Some wetland communities proposed to be impacted by the proposed activity are ranked S3, vulnerable to extirpation in Michigan (MNFI designation), according to the application. These include: Hardwood-conifer Swamp described by the application as “abundant” along the proposed route; Rich Conifer Swamp and Northern Hardwood Swamp described as “moderately abundant”; and Poor Fen and Muskeg, described as “rare” ~~in abundance~~ along the proposed route (reference the CR 595 Michigan Rapid Assessment Method (MiRAM) Document in appendix M of the application).***

- (b) A loss of a wetland may deprive the people of the state of some or all of the following benefits to be derived from the wetland:
  - (i) Flood and storm control by the hydrologic absorption and storage capacity of the wetland.

***(Finding) The proposed road would likely result in impacts to flood and storm control functions of the affected wetlands, including runoff of storm water. The proposed road construction would directly eliminate ~~25.84~~26.06 acres of wetland, much of which is located within floodplains and riparian areas along streams. The majority of these riparian wetlands were found to be high-functioning wetlands, according to the MiRAM wetland functional assessment included in the application. The affected wetlands function as storage areas for flood waters, especially during spring thaws of heavy snow accumulations in the project area. The loss of floodplain storage is proposed to be mitigated at larger stream and river crossings with compensating cuts within regulated 100-year floodplain areas (Part 31, Water Resources Protection, NREPA).***

- (ii) Wildlife habitat by providing breeding, nesting, and feeding grounds and cover for many forms of wildlife, waterfowl, including migratory waterfowl, and rare, threatened, or endangered wildlife species.

***(Finding) The proposed road would directly eliminate ~~25.84~~26.06 acres of wetland, including 10.68 acres of rare wetland types (41 % of the total wetland impact), resulting in loss of habitat for wildlife species and fragmentation of remaining***

**wildlife habitat. The proposed road represents a potentially significant physical barrier to wildlife movement and increase in wildlife mortality. Impacts to habitat and increased mortality would result in negative effects on wildlife populations. Road generated noise may cause additional negative impacts on wildlife habitat and species populations.**

**Further impacts to wildlife habitat would include the introduction of invasive plants, changes in wetland water flows, and water quality degradation resulting from runoff of road sand, salt, and other pollutants, affecting adjacent wetland and riparian areas. Direct impacts to at least one threatened or endangered species would result from the proposed road construction, which would require a permit from the MDNR (Part 365 of NREPA).**

**The MDNR has commented on the application and has recommended the following to minimize potential impacts: 1) use of existing roads as much as possible; 2) reduced speed limits to 45 mph in areas where moose vehicle strikes are a concern (not legally enforceable according to the CRC in a 5/25/2012 meeting with MDNR and MDEQ); 3) monitoring and reporting of vehicle wildlife collisions after completion of road construction to determine if additional mitigation solutions are needed; 4) minimization of grassy roadside areas that may be attractive to wildlife as a food source; 5) use of native grasses for all roadside plantings and survey for and removal of invasive/exotic noxious plants; 6) evaluation of new types of pavement to reduce road noise; 7) limitation of secondary road construction; 8) reduction of road salt loads and/or use of calcium magnesium acetate or potassium acetate as an alternative to road salt.**

- (iii) Protection of subsurface water resources and provision of valuable watersheds and recharging ground water supplies.

**(Finding) The proposed road does not appear to be a significant threat to subsurface water resources or to potentially interfere with groundwater recharge. To minimize impacts to the hydrology of adjacent wetlands the applicant is proposing equalizer culverts and a 3-foot thick layer of porous rock as part of the road construction design to allow for the movement of ground water through the road bed at wetland crossings.**

- (iv) Pollution treatment by serving as a biological and chemical oxidation basin.

**(Finding) The proposed road would directly eliminate ~~25.84~~26.06 acres of wetland that currently function to serve as biological and chemical oxidation basins. The proposed project may result in a negative effect on the existing and remaining wetland hydrology and water quality, further impacting wetland function.**

- (v) Erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter.

***(Finding) Direct loss of wetlands proposed to be filled at road crossings and water quality impacts to adjacent wetlands would result from construction of the road. The wetlands proposed to be crossed function as filtering and sedimentation basins.***

***There would be reduced erosion and sedimentation of riparian and adjacent wetlands at the existing currently undersized stream crossing structures, since these crossings are proposed to be upgraded to at least match bank full conditions.***

- (vi) Sources of nutrients in water food cycles and nursery grounds and sanctuaries for fish.

***This wetland function would likely be impacted by the proposed road project as a result of elimination of some riparian wetlands and may also result in cumulative impacts to stream habitat and water quality.***

- (c) Wetlands are valuable as an agricultural resource for the production of food and fiber, including certain crops which may only be grown on sites developed from wetland.

***(Finding) The proposed road is not likely to affect any wetlands currently in agricultural use, but could impact cultural uses of wetlands in affected areas.***

- (d) That the extraction and processing of nonfuel minerals may necessitate the use of wetland, if it is determined pursuant to section 30311 that the proposed activity is dependent upon being located in the wetland and that a prudent and feasible alternative does not exist.

***(Finding) The proposed activity does not include the extraction of nonfuel minerals and is not dependent upon being located in a wetland.***

- (2) In the administration of this part, the department shall consider the criteria provided in subsection (1).

### **Part 303: Wetland Permit Review Criteria**

Section 30311, of Part 303, states in pertinent part:

- (1) A permit for an activity listed in section 30304 shall not be approved unless the department determines that the issuance of a permit is in the public interest, that the permit is necessary to realize the benefits derived from the activity, and that the activity is otherwise lawful.

***(Finding) A new primary county road is determined to be in the public interest by providing the following benefits: The proposed CR-595 project would benefit Marquette County by providing a more direct and improved route of access to northwest sections of Marquette County; shorten haul distances for***

***transporting mine ore, aggregate, and logging products to existing product processing centers; reduce heavy truck traffic in more populated areas; and shorten affected employee travel distances to employment locations. A new county primary road would provide a public safety benefit by providing increased efficiencies and safety response times for emergency services to northwestern Marquette County.***

***There is support for this project from the majority of the local townships, cities, county governments, and some citizens in the area. There is opposition to the project by some citizens and the following organizations :***

***Powell Township  
Great Lakes Indian Fish and Wildlife Commission  
Lac Vieux Desert Band of Lake Superior Chippewa Indians  
Yellow Dog Watershed  
National Wildlife Federation  
Upper Peninsula Environmental Coalition  
Water Action Vital Earth  
Superior Watershed Partnership***

***The proposed road would impact regulated wetlands, streams and floodplain areas and permits are necessary to realize the benefits of the proposed activity.***

***At the time of this review, the proposed activity has not yet been shown to be otherwise lawful under NREPA since prior permit would be required under Part 365, Endangered Species Protection, of NREPA. In addition, not all areas proposed to be impacted by the road have been shown to have been adequately surveyed for Part 365 permit requirements. The MDNR has identified concerns with potential impacts and advises that previous surveys, both internal and external should be consulted to help determine all Part 365 requirements.***

***(2) In determining whether the activity is in the public interest, the benefit which reasonably may be expected to accrue from the proposal shall be balanced against the reasonably foreseeable detriments of the activity. The decision shall***

reflect the national and state concern for the protection of natural resources from pollution, impairment, and destruction. The following general criteria shall be considered:

(a) The relative extent of the public and private need for the proposed activity.

***Public need for the proposed activity: The CRC is the public agency responsible for determining county road needs, and the CRC has determined there is a public need for a new county primary road to service northwest Marquette County. In deference to the Marquette County Road Commission's responsibility for making determinations regarding county roads, the MDEQ has accepted the public need for a new county primary road.***

***Private need for proposed activity: There is private need for a new primary county road to meet existing and future demands for improved access and safety concerns related to the mineral mining, aggregate extraction, and forestry products industries of northwest Marquette County and for the transportation of products, services and people to and from the source location to the processing facilities located in Marquette County and other locations throughout the Upper Peninsula of Michigan. In addition, there exists private and public need for improved year-round access to recreational lands held in private and public ownership in northwest Marquette County and for the transportation of people, goods and services to and from population centers.***

(b) The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.

***(Finding) There is a potential alternate ~~primary county road route~~, utilizing the existing Wolf Lake Road. Use of this alternative would ~~The Red Road/CR510 alternate route result in~~ has less wetland aquatic resource impacts, and less new stream crossings. The Red Road/CR-510 alternative has not been ruled out by MDEQ as a feasible and prudent alternative route at this time. The applicant has indicated that this alternative is not feasible and prudent.***

A revised Red Road/CR 510 route was also included as an alternate route in the April 12, 2012 submittal. The applicant indicates that the revised route has additional stream crossings, higher wetland impacts, more miles, and higher cost than the January 2012 version. This alternate route was looked at by the



applicant to avoid recreational residences and relocate the Dead River crossing to a less flood prone area.

*Design methods to minimize aquatic resource impacts were considered in the application for proposed CR 595. These include the following: 1) the use of 1 on 2 side slopes with guard rail, 2) reduced speed limits to allow for curves, 3) measures to prevent storm water runoff directly into streams and some wetland areas, and 4) the use of properly sized culverts and bridges to match stream flows. Additional methods to further reduce impacts are being discussed with the applicant. These measures would unavoidably increase the cost of the proposed CR 595 route.*

*The cost differential between the proposed CR-595 route (\$85 million) and the Red Road/CR510 alternative (\$113 million) may be reduced if additional available methods to minimize detriments to aquatic resources are required to be incorporated for the CR 595 route. For example, employing a method to span a sensitive wetland area or increasing the span of a stream crossing and shortening the enclosure length to allow for improved wildlife and aquatic organism passage would be within the range of typical costs for a road that spans another road or other obstacle.*

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*The MDEQ has found that the Red Road/CR510 route is not a feasible and prudent alternative to the proposed route.*

- (c) The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private uses to which the area is suited, including the benefits the wetland provides.

*(Finding) The proposed CR 595 route would terminate at an existing designated seasonal county road (CR IAA; aka "Triple A Road"), which would be maintained to CR 550 (the currently approved mine haul route) by Kennecott for hauling purposes until such time as proposed CR 595 would be available for use.*

*Leaving this portion of CR IAA to be maintained as a seasonal road means that the proposed CR 595 would not significantly benefit the town of Big Bay and much of Powell Township, which currently access the Marquette area via CR 550. The new road would benefit the economic interests of the mining, logging, and aggregate industries in remote northwest Marquette County, improve private property access and values, and would increase the tax base in the four directly affected townships in the geographical area.*

***The new road would open up a remote area, thereby improving the recreational access in a sense, but would unavoidably result in loss of the current quiet recreational values, due to road noise and other road impacts, including those on wildlife. The new road would eliminate access to at least some of the existing network of two track roads and trails currently used for multiple recreational purposes, since the proposed purpose necessitates a significantly higher profile road than the existing roads and trails.***

***The new road would provide for faster, more efficient, direct, and year round access to some of northwest Marquette County for law enforcement and emergency services. It would also unavoidably result in increased wild fires since 90 percent of wildfires are known to be caused by human activity. The new road would result in an increase in emergencies and law enforcement issues due to increased human use of the area. Emergency and law enforcement access to the main population center of northwest Marquette County in the town of Big Bay and much of Powell Township would not be improved by the proposed new road.***

***The response time from the Bell Memorial hospital in Ishpeming will be 30-45 minutes along the proposed CR-595 route versus 90 minutes for the RedRoad/CR510 route. The response time to and from Marquette General hospital would be similar for both routes.***

***Detriments of the proposed new road include impacts to 26.06 acres of wetlands, some of which have been determined to be high quality and/or rare (reference the MiRAM documents included in the application materials), fragmentation of habitat, take of protected species associated with aquatic habitats, negative effects on wildlife population and habitat, impacts on water quality at wetland and stream crossings, and loss of some recreational and cultural values to humans. The new road would likely result in significant cumulative impacts to aquatic resources as a result of secondary road construction and improved opportunity for industrial and residential development, as a result of providing improved access to an essentially undeveloped area. The area is unique in currently having one of the lowest road densities in the Northern Great Lakes Region.***

***The applicant states that the area will not likely see increased development as a result of the proposed new road since there is currently a lack of adequate electrical service to the area.***

- (d) The probable effects of each proposal in relation to the cumulative effects created by other or existing and anticipated activities in the watershed.

***(Finding) Either the proposed or potential alternate road route will likely result in future cumulative impact effects on aquatic habitats and wildlife resources by allowing increased access for industrial and logging use, and increased opportunity for recreational access and residential development on private and public property. The proposed CR 595 route would open up a relatively undeveloped area, increasing the potential for disruption to high quality and imperiled wetlands present within the region. The proposed road location would result in greater aquatic resource impacts than the potential Red Road/CR510 alternative, since it ~~it~~ would necessitate more new stream crossings, result in more wetland impacts, and cause unavoidable fragmentation of stream and wetland areas currently not bisected by roads which are more substantial than “two track” roads and trails.***

***Based upon available project information, it appears that an alternate route not yet ruled out as a feasible and prudent alternative has the potential to fulfill most, if not all, of the stated project purpose. The project purpose may have been narrowed by the applicant's alternatives analysis which further states the route must be located west of the Silver Lake Basin, and by the April 12, 2012 submittal of a map depicting the applicant's geographic division of the county (reference attachment 2).***

(e) The probable effects on recognized historic, cultural, scenic, ecological, or recreational values and on the public health or fish or wildlife.

***(Finding) The proposed CR 595 route would potentially impact Native American cultural values by essentially bisecting a unique large and largely undeveloped area covered by treaty rights (reference Keewenaw Bay Indian Community {KBIC} and related comments). The KBIC has appealed to the United Nations; the United States endorsed the United Nation's “Declaration on the Rights of Indigenous Peoples” in 2010. The regulatory significance of the KBIC objection on state regulation is unclear.***

***The applicant stated that according to the URS Corporation Phase 1 archeological survey, the proposed CR-595 would not affect any Archeological resources eligible for the National Register for Historic Places. No archeological concerns have been identified on state-owned property. However, MDNR comments recommend a more in-depth archeological survey be performed on private and corporate lands.***

***The proposed road would impact scenic values in a way that is positive for some and negative for others.***

***The proposed road would negatively impact ecological values including fish and wildlife by eliminating ~~25.84~~26.06 acres of wetlands and***

constructing new stream crossings in currently road-less locations. Ecological impacts would include impacts to wildlife habitat and populations, water quality, and habitat degradation through the introduction of invasive species and presence of road noise. The MDNR has offered consultation with the applicant on measures that could be used to minimize some of these impacts. Reference the discussion found in section 30302 (1) (b)(ii).

The proposed road would improve some types of recreation through improved recreational access. The proposed road would have impacts on some types of existing recreation and existing recreational access.

The impact on the public health would be positive in that accident victims in the remotest areas of northwestern Marquette County would receive faster emergency service, although the road would unavoidably result in an increased need for these services.

In summary, construction of the proposed road would result in public health benefits by improving emergency access to remote northwestern Marquette County. The proposed road would result in permanent ecological impacts to a unique area having one of the lowest road densities in the Northern Great Lakes Region, impacts to some recreational uses, wildlife habitat and populations, aquatic habitats including rare wetlands, and would likely cause cumulative impacts, extending beyond the proposed road right-of-way.

(f) The size of the wetland being considered.

*(Finding) The impacts to wetlands and aquatic resources resulting from the proposed road would be in an area including portions of 4 watersheds located in Marquette and Baraga Counties. The affected wetland complexes are mostly large and relatively intact wetland areas. 41% of the total wetland impacts would be to rare "S-3" wetlands, designated by MNFI as vulnerable to extirpation in Michigan. Information is still pending from the applicant regarding impacts to rare wetlands.*

(g) The amount of remaining wetland in the general area.

*(Finding) There is a significant amount of wetland in the general area. A portion of the wetlands that would be affected by the proposed construction are wetlands which are listed as vulnerable to extirpation in Michigan. If the proposed road were to be constructed, there would be some of these types of wetlands still remaining in the area, to an un-*

**quantified extent. These wetlands are located in an area that is unique for having one of the lowest road densities in the Northern Great Lakes Ecological Region, meaning that the wetlands in question are some of the least disturbed examples of these communities remaining in the state of Michigan.**

(h) Proximity to any waterbody.

**(Finding) The proposed road would cross 22 streams and cross wetlands that would be impacted by dredge and fill road construction activities, and located in proximity to other aquatic resources that may be indirectly impacted.**

(i) Economic value, both public and private, of the proposed land change to the general area.

**(Finding)The private economic value of the proposed land change to the general area would include more efficient transport of materials for industry, and likely increased industrial land use and development due to improved access for mining, logging, and other commerce. Property values would increase due to improved access to private properties and increased development.**

**The public economic value would come from increased tax base to the affected townships in remote northwestern Marquette County, as well as the new jobs resulting from the increased tax base and increased commercial activity.**

**The zoning plan chapter of the Marquette County Comprehensive Plan points lists some negative impacts, stating in pertinent part:**

**“The proposed access road to the remote Kennecott mining site....will be an all season road...It will generate requests to rezone areas for year-round development...Such zoning would further burden already taxed township services...It increases the risk for and potential damage from wildfires. At the same time it would increase the difficulty in providing fire fighting and other emergency and routine services.”**

- (3) In considering a permit application, the MDEQ shall give serious consideration to findings of necessity for the proposed activity which have been made by other state agencies.

***(Finding) MDOT has determined that a new primary county road is needed, but does not limit it to the specific corridor proposed by the application (Appendix B of the application). Recently, the CRC was granted MDOT funding for upgrade of CR IAA, which is common to both the proposed route and the potential alternative, the Red Road/CR 510 route.***

***The Michigan State Police statement determines that the proposed road would increase traffic safety by taking heavy trucks off existing routes and improving traffic flow on CR 550, the US-41/M-28 corridor and through the cities of Marquette, Negaunee, and Ishpeming (Appendix G of the application).***

***The MDNR indicates that the proposed route would reduce the response time for MDNR firefighters to a remote part of Marquette County.***

- (4) A permit shall not be issued unless it is shown that an unacceptable disruption will not result to the aquatic resources. In determining whether a disruption to the aquatic resources is unacceptable, the criteria set forth in section 30302 and subsection (2) shall be considered. A permit shall not be issued unless the applicant also shows either of the following:

- (a) The proposed activity is primarily dependent upon being located in the wetland.

***(Finding) The proposed road is not primarily dependent upon being located in a wetland. See comments above regarding Section 30302.***

- (b) A feasible and prudent alternative does not exist.

***(Finding) It has not currently been shown by the applicant that a less damaging feasible and prudent alternative does not exist. The applicant is still working on the submittal of information relevant to this finding.***

- (5) An alternative that entails higher cost, as described in R 281.922(a) (11) of the Michigan administrative code, is not feasible and prudent if those higher costs are unreasonable. In determining whether such costs are unreasonable, the department shall consider both of the following:

- (a) The relation of the increased cost to the overall cost and scope of the project.

***(Finding) The applicant estimates that the ~~Red Road/CR510 route~~ Wolf Lake Road route alternative is less cost than the proposed route. -alternative as presently designed would increase project cost over the CR595 route as presently designed by approximately 33%.***

Cost increases for other measures to further reduce aquatic resource impacts ~~for either route~~ may increase the cost of the at route.

~~Measures to reduce impacts resulting from the upgrade of existing roads (as for the Red Road/CR 510 alternative) would be less significant than those needed to reduce aquatic resource detriments likely to result from construction of a new road.~~

Alternative	NPV of Total Cost to MCRC (\$M)	Increase in Cost Relative to CR 595 as proposed (\$M)	Increase in Cost Relative to CR 595 as proposed	Stream Crossings	Wetland Impact (Acres)	Wetland Impact Avoided (Acres)	Cost per acre of wetland impact avoided (\$M/acre)	Length (Miles)	NPV of Ore Hauling* (\$M)
CR 595 as proposed	\$85	NA	NA	22	25.5	NA	NA	21.4	\$20
Sleepy Hollow/Red Road (1/12)	\$113	\$28	33%	34	18.3	7.2	\$4	39.9	\$33
Sleepy Hollow/Red Road (4/12)	\$119	\$34	40%	31	21.2	4.3	\$8	40.5	\$33
Mulligan East (1/12)	\$155	\$70	82%	14	35.4	NA	NA	23.4	\$22
Mulligan East (4/12)	\$131	\$46	54%	17	15.7	9.8	\$5	25.6	\$24
Mulligan West	Not Prudent and Feasible due to Conservation Easement								

NPV is "Net Present Value" of Operating plus Capital Costs

This represents the to Kennecott for hauling ore over each alternative. It was not used in any of the Calculations.

\*a.k.a Red Road/CR 510 in the application

(b) Whether the projected cost is substantially greater than the costs normally associated with the particular type of project.

**(Finding)** see (a) above. The estimated cost for the CR-595 project is \$4.0 million per mile for the proposed 21.4 mile road. The estimated cost of utilizing the Red Road/CR510Wolf Lake alternative does not is significantly change the cost of the proposed road, \$2.8 million per mile for the 39.9 mile road. Costs can vary considerably depending on pavement thickness, soil conditions, utility conflicts, storm sewer requirements, land use, terrain, and the need to excavate natural soils or blast through rock. The Marquette County Road Commission recently estimated that upgrading portions of

***Triple A Road and County Road 601 will range from \$1.5 - \$2.1 million per mile.***

***The Michigan Department of Transportation indicates that their average cost to reconstruct an existing road in the Upper Peninsula was \$1.9 million for a 2 lane road. They constructed a new section of US-41 near Baraga a couple of years ago at a cost of \$.193 million per mile which included moving the road about 100 feet on flat terrain with no stream crossings. The City of Marquette is completing a new 0.48 mile segment of road by extending McClelland Avenue at a cost of \$1.8 million (equivalent to \$3.6 million per mile) This included items for curb and gutter, storm sewer, 2 traffic signals, stream restoration work and the construction of a retaining wall to avoid additional wetland impacts.***

***Typical reconstruction costs in the lower peninsula have ranged from \$340,000 per mile to \$1.2 million per mile in rural flat areas not including engineering and design costs. A one mile extension of Michigan Avenue in Eaton County with minimal fill, no stream crossings or right of way cost \$2.6 million, including \$800,000 for a sound wall, some turn lanes, sidewalk, and partial 3 lane road. Cost did not include engineering and design. A recent project in Barry County cost \$1.5 million per mile to upgrade an existing road and \$7 million per mile to install a new section of road with 2 large bridges. Reference attached cost comparison. See attachment 3.***

Rule 281.922a Permit application review criteria, states in pertinent part:

Rule 2(a)

(4) A permit applicant shall completely define the purpose for which the permit is sought, including all associated activities. An applicant shall not so narrowly define the purpose as to limit a complete analysis of whether an activity is primarily dependent upon being located in the wetland and of feasible and prudent alternatives. The department shall independently evaluate and determine if the project purpose has been appropriately and adequately defined by the applicant, and shall process the application based on that determination.

(10) An alternative may be considered feasible and prudent even if it does not accommodate components of a proposed activity that are incidental to or severable from the basic purpose of the proposed activity.

***(Finding) The MDEQ has indicated previously that the project purpose as stated in the application is acceptably and adequately defined by the applicant. The project purpose stated in the application follows:***



"To construct a primary county north-south road that 1) connects and improves emergency, commercial, industrial, and recreational access to a somewhat isolated but key industrial, commercial, and recreational area in northwest Marquette County to US-41; and 2) reduces truck travel from this area through Marquette County population centers".

**The applicant has eliminated all several of ~~evaluated~~ alternatives as not being feasible or prudent and/or as not meeting the project purpose, except utilization of the existing Wolf Lake Road for a portion of the proposed CR 595 route. Regarding the ~~potential Red Road/CR510 alternative~~, the applicant states that ~~that the route is 19.9 miles (actually 18.5 miles) longer, requiring substantial additional expenditures for maintenance, estimated at \$76,000 per year. The applicant further argues that the Red Road/CR510 alternative does not substantially improve emergency, commercial, and recreational access to northwest Marquette County.~~**

**The ~~Red Road/CR510~~Wolf Lake Road alternative would have impact 18.30.74 acres less ~~acres of~~ wetland impact (total 25.32 acres for the revised CR 595 route), and necessitate the relocation of the Escanaba River crossing, and upgrade of two stream crossings, upgrading 29 existing and constructing 5 new stream crossings. The proposed CR 595 route would necessitate a new crossing of the Escanaba River, and impact 265.81-06 acres of wetland, and necessitate upgrading 15 existing stream crossings and constructing 7 new stream crossings.**

## Mitigation

Rule 281.925 Mitigation

Rule 5. (1) As authorized by section 30312(2) of the act, the department may impose conditions on a permit for a use or development if the conditions are designed to remove an impairment to the wetland benefits, to mitigate the impact of a discharge of fill material, or to otherwise improve the water quality.

- (a) The wetland impacts are otherwise permissible under sections 30302 and 30311 of the act.

***(Finding) The application has not currently ruled out a potential feasible and prudent alternative with less impact on aquatic resources. The application has not currently established that the proposed route would not cause an unacceptable disruption to the aquatic resources. MDEQ is awaiting reviewing information received on June 7 from the applicant, defining the impacts to rare wetlands of the proposed CR 595 road construction, along with additional information relating to this finding.***

- (b) No feasible and prudent alternative to avoid wetland impacts exists.

**(Finding) A lack of a feasible and prudent alternative has not currently been established by the application.**

- (c) An applicant has used all practical means to minimize impacts to wetlands. This may include the permanent protection of wetlands on the site not directly impacted by the proposed activity.

**(Finding) The applicant proposes several techniques to minimize impacts to wetlands along the proposed route, including the use of 1 on 2 slopes with guard rail in some impacted wetland areas, reduced speed limits to allow curves in certain sections of the proposed roadway, the use of bridges instead of culverts on some of the stream crossings, directing storm water runoff away from streams and some wetland areas, and the wetland equalizer culverts and a 3 foot layer of subsurface porous rock to allow groundwater flow to easily move from one side of the road to the other. The MDNR comments state that the use of existing roads is preferred over new road construction, and also suggests the applicant explore other methods to further reduce impacts of the proposed route.**

**~~———— The applicant is working on a revised mitigation plan to include does-not-proposed describe mitigation for impacts to rare wetlands, including preservation and describes the creation of forested, scrub shrub, and emergent wetlands as mitigation. This has been discussed with the applicant. The applicant is working on a revised draft mitigation plan.~~**

**The wetland impacts are not yet fully quantified or qualified in the application. The referenced summary table in the wetland functional assessment section of the application where rare wetland values are discussed was missing from the application prior to the May 18, 2012 submittal. ~~Additional rare wetland impact information is pending from the applicant.~~ The EPA has indicated that mitigation through creation only is inadequate, and that the applicant needs to look at other options as well including restoration and preservation.**

**The applicant is currently working on improved wetland and stream mitigation plans, with more emphasis on preservation than creation of wetlands.**

- (3) The department shall require mitigation as a condition of a wetland permit issued under part 303 of the act, except as follows:

- (a) The department may waive the mitigation condition if either of the following provisions applies:
  - (i) The permitted wetland impact is less than 1/3 of an acre and no reasonable opportunity for mitigation exists.

***(Finding) The proposed activity would impact far in excess of 1/3 of an acre of wetland. The MDEQ is awaiting information regarding impacts to rare wetlands, and a new mitigation plan from the applicant. This information is needed to complete this finding.***

- (ii) The basic purpose of the permitted activity is to create or restore wetlands or to increase wetland habitat.

***(Finding) The basic purpose of the proposed activity is not to create or restore wetland.***

- (b) If an activity is authorized and permitted under the authority of a general permit issued under section 30312(1) of the act, then the department shall not require mitigation. Public transportation agencies may provide mitigation for projects authorized under a general permit at sites approved by the department under a memorandum of understanding between the department and public transportation agencies.

***(Finding) The proposed activity does not fit any general or minor permit category.***

(4) The department shall require mitigation to compensate for unavoidable wetland impacts permitted under part 303 of the act utilizing one or more of the following methods:

- (a) The restoration of previously existing wetlands.

***(Finding) A limited amount of wetland restoration is proposed, without plans or performance factors for monitoring of the restored wetlands. The applicant was proposing to restore these wetlands but did not request credit for mitigation, so that there would not be any monitoring conditions required, unless these restoration area are included in the revised mitigation plan.***

- (b) The creation of new wetlands.

***(Finding) The application currently proposes the creation of 49.4 acres of wetland, including forested wetland. A new mitigation plan is being designed by the applicant.***

- (c) The acquisition of approved credits from a wetland mitigation bank established under R281.951 et seq.

***(Finding) The application may propose this type of mitigation in the new mitigation plan, pending at this time.***

- (d) In certain circumstances, the preservation of existing wetlands. The preservation of existing wetlands may be considered as mitigation only if the department determines that all of the following conditions are met:
  - (i) The wetlands to be preserved perform exceptional physical or biological functions that are essential to the preservation of the natural resources of the state or the preserved wetlands are an ecological type that is rare or endangered.

***(Finding) Rare wetlands in the vicinity may be considered favorably for preservation, and the applicant is taking this into consideration while devising a new mitigation proposal.***

- (ii) The wetlands to be preserved are under a demonstrable threat of loss or substantial degradation due to human activities that are not under the control of the applicant and that are not otherwise restricted by state law.

***(Finding) see (i) above.***

- (iii) The preservation of the wetlands as mitigation will ensure the permanent protection of the wetlands that would otherwise be lost or substantially degraded.

***(Finding) see (i) and (ii) above.***

(5) The restoration of previously existing wetlands is preferred over the creation of new wetlands where none previously existed. Enhancement of existing wetlands is not considered mitigation. For purposes of this rule, wetland restoration means the reestablishment of wetland characteristics and functions at a site where they have ceased to exist through the replacement of wetland hydrology, vegetation, or soils.

(6) An applicant shall submit a mitigation plan when requested by the department. The department may incorporate all or part of the proposed mitigation plan as permit conditions. The mitigation plan shall include all of the following elements:

- (a) A statement of mitigation goals and objectives, including the wetland types to be restored, created, or preserved.

***(Finding) The application contains a vague statement of mitigation goals and objectives in AAPA section 8, by including a table listing wetland types and corresponding mitigation acreages required. It lists performance objectives,***

but has an incomplete list of functions and values that would be lost from the impacted wetlands. It does not state the replacement of lost wetland functions as a wetland mitigation objective. Due to the communication of DEQ and EPA mitigation plan ~~these concerns to the applicant~~, the applicant is in the process of developing a new mitigation plan.

- (b) Information regarding the mitigation site location and ownership.

**(Finding)** This information is provided for the currently proposed mitigation sites.

- (c) A site development plan.

A plan view of each site is provided, but the plans fail to include cross sections or detailed information, such as proposed wetland plant and wildlife habitat functions replacement, or replacement of other lost wetland functions, which are not currently defined by the application. Additional information is pending from the applicant. See (6)(a) above.

- (d) A description of baseline conditions at the proposed mitigation site, including a vicinity map showing all existing rivers, lakes, and streams, and a delineation of existing surface waters and wetlands within the proposed mitigation area.

**(Finding)** This information is not provided; some proposed mitigation areas contain hydric soils, indicating a potential that existing wetlands occur on the proposed mitigation sites. No wetland delineation of the proposed mitigation sites is provided. See (6)(a) above regarding the development of a new mitigation plan.

Performance standards to evaluate the mitigation.

**(Finding)** Performance standards are provided but lacking in detail such as proposed wetland plant communities and wildlife goals, and functions proposed to replace functions lost from the wetlands, including rare wetlands, which would be impacted by the proposed road route. See (6)(a) above.

- (e) A monitoring plan.

**(Finding)** A more detailed monitoring plan is needed. There is no specific plan for monitoring of invasives, although the applicant states that monitoring for invasives is proposed. These concerns have also been relayed to the applicant, and a new mitigation plan is being developed.

- (f) A schedule for completion of the mitigation.

***(Finding) Not provided in the mitigation plan.***

- (g) Provisions for the management and long-term protection of the site.

The department shall, when requested by the applicant, meet with the applicant to review the applicant's mitigation plan.

***(Finding) No provisions are included for the long term protection of the proposed mitigation site (s). It is standard for all mitigation areas to be protected by a conservation easement, which would be required before any portion of the required financial assurance could be released. This has been discussed with the applicant.***

- (7) An applicant shall provide mitigation to assure that, upon completion, there will be no net loss of wetlands. The mitigation shall meet the following criteria as determined by the department:

- (a) Mitigation shall be provided on-site where it is practical to mitigate on-site and where beneficial to the wetland resources.

***(Finding) Most of the proposed mitigation is in the corresponding watersheds where wetland impacts are proposed, except that the impacts to wetlands in the Dead River watershed are proposed to be mitigated in 2 of the other watersheds, due to an undocumented lack of mitigation potential in the Dead River watershed. This has been discussed with the applicant.***

- (b) If subdivision (a) of this subrule does not apply, then an applicant shall provide mitigation in the immediate vicinity of the permitted activity if practical and beneficial to the wetland resources. "Immediate vicinity" means within the same watershed as the location of the proposed project. For purposes of this rule, a watershed refers to a drainage area in which the permitted activity occurs where it may be possible to restore certain wetland functions, including hydrologic, water quality, and aquatic habitat functions. Watershed boundaries are shown in Figure 1 in R 281.951.

***(Finding) More complete information is needed to justify mitigating Dead River watershed impacts in the other watersheds. See (7)(b) above.***

- (c) Mitigation shall be on-site or in the immediate vicinity of the permitted activity unless the department determines that subdivisions (a) and (b) of this subrule are infeasible and impractical.

**(Finding) Reference finding for (6)(b) above.**

- (d) The department shall require that mitigation be of a similar ecological type as the impacted wetland where feasible and practical.

**(Finding) Wetland types and corresponding mitigation acreages are shown in table 8-1, but no further reference to this objective is provided in the wetland mitigation proposal. Reference (6)(a) above.**

- (e) If the replacement wetland is of a similar ecological type as the impacted wetland, then the department shall require that the ratio of acres of wetland mitigation provided for each acre of permitted wetland loss shall be as follows:
  - (h) Restoration or creation of 5.0 acres of mitigation for 1.0 acre of permitted impact on wetland types that are rare or imperiled on a statewide basis.

**(Finding) ~~Acreages of S-3 wetlands proposed to be impacted should be provided, and a~~ more appropriate level of information or mitigation type than creation should be considered for mitigation to these imperiled wetlands. There is no proposed 5:1 ratio proposed for mitigation of impacts to these wetlands, or a complete discussion of the acreages and functions that would be lost as a result of the proposed impacts to these wetlands. These concerns have been discussed with the applicant, and the applicant is working on a new mitigation plan to address the concerns.**

- (ii) Restoration or creation of 2.0 acres of mitigation for 1.0 acre of permitted impact on forested wetland types, coastal wetlands not included under (i) of this subdivision, and wetlands that border upon inland lakes.

**(Finding) The applicant has proposed mitigating forested wetland impacts at a 2 to 1 ratio. Impacts to rare wetlands may require a higher mitigation ratio. The applicant is working on providing more information about impacts to these wetlands. Also see (6)(a) above.**

- (iv) Restoration or creation of 1.5 acres of mitigation for 1.0 acre of permitted impact on all other wetland types.

***(Finding) Appropriate ratios proposed, except where rare wetlands would be impacted, meaning that a 5:1 ratio is appropriate. ~~The applicant is working on providing information regarding impacts to rare wetlands.~~***

- (v) 10 acres of mitigation for 1.0 acre of impact in situations where the mitigation is in the form of preservation of existing wetland as defined in subrule (4) of this rule.

(vi)

***(Finding) Preservation is not proposed by the current mitigation plan, but may be proposed in the pending new plan.***

- (f) The department may adjust the ratios prescribed by this rule as follows:

- (i) The ratio may be increased if the replacement wetland is of a different ecological type than the impacted wetland.

***(Finding) No preservation of wetlands is currently proposed. The EPA has suggested that the applicant explore the use of preservation as a means of meeting mitigation requirements. This has been discussed with the applicant, and the applicant is working on a new mitigation plan to address these concerns.***

- (ii) If the department determines that an adjustment would be beneficial to the wetland resources due to factors specific to the mitigation site or the site of the proposed activity, then the department may increase or decrease the number of acres of mitigation to be provided by no more than 20 percent. This shall not limit the amount which a ratio may be increased under subdivisions (f) and (i) of this subrule.

***(Finding) The proposed wetland impacts are within an area documented to be one of the areas of lowest road density in the Northern Great Lakes Region. ~~Therefore, and~~ it may be appropriate to seek maximum mitigation acreages due to the unique area proposed to be impacted. Mitigation would only be considered if project information clearly demonstrates that a less damaging feasible and prudent alternative was not available, for the both proposed location and methods of construction.***

- (g) The mitigation shall give consideration to replacement of the predominant wetland benefits lost within the impacted wetland.

***(Finding) The wetland functions of the wetlands proposed to be impacted are not provided. These concerns have been relayed to the applicant.***



- (h) The department shall double the required ratios if a permit is issued for an application accepted under section 30306(5) of the act.

(Finding) This does not apply.

- (i) The department shall determine mitigation ratios for wetland dependent activities on a site-specific basis.

***(Finding)The proposed activity is not wetland dependent.***

- (8) Except where mitigation is to occur on state or federally owned property or where the mitigation is to occur in the same municipality where the project is proposed, the department shall give notice to the municipality where the proposed mitigation site is located and shall provide an opportunity to comment in writing to the department on the proposed mitigation plan before a mitigation plan is approved by the department.
- (9) An applicant shall complete mitigation activities before initiating other permitted activities, unless a concurrent schedule is agreed upon between the department and the applicant, and an adequate financial assurance mechanism is provided by the applicant.
- (10) The department may require financial assurances to ensure that mitigation is accomplished as specified.
- (11) An applicant shall protect the mitigation area by a permanent conservation easement or similar instrument that provides for the permanent protection of the natural resource functions and values of the mitigation site, unless the department determines that such controls are impractical to impose in conjunction with mitigation that was undertaken as part of state funded response activity under Act No. 451 of the Public Acts of 1994, as amended.
- (12) An applicant, with the approval of the department, may provide all or a portion of the mitigation through the acquisition of approved credits from a wetland mitigation bank established under R 281.951 et seq. One credit shall be utilized for each acre of mitigation required under subrule (7) of this rule.

#### **Part 301: INLAND LAKES AND STREAMS PERMIT REVIEW CRITERIA**

Section 30106, of Part 301, states in a pertinent part:

The department shall issue a permit if it finds that the structure or project will not adversely affect:

The public trust, as defined by R 281.811, Definitions:

(1)(g) Public trust means all of the following:

- (j) The paramount right of the public to navigate and fish in all inland lakes and streams which are navigable.

***(Finding) The impact of the proposed road on the public's right to navigate and fish will be minimal.***

- (ii) The perpetual duty of the state to preserve and protect the public's right to so navigate and fish.

***(Finding) Same as (i) above.***

- (iii) The paramount concern of the public and the protection of the air, water, and other natural resources of this state against pollution, impairment, and destruction.

***(Finding) The CR-595 ~~alternative proposal~~ would have 22 stream crossings (15 existing and 7 new). The potential ~~Red Road/CR540~~Wold Lake Road alternative would have ~~3029~~ existing and ~~45~~ new stream crossings. The crossings are designed to span bank full width at a minimum. In some cases larger span and/or shorter structures ~~may will~~ be required to address wildlife passage and stream impact issues.***

- (iv) The duty of the state to protect the air, water, and other natural resources of this state against pollution, impairment, or destruction.

***(Finding) Same as (iii) above.***

Riparian rights, as defined by R 281.811, Definitions:

- (2) "Riparian rights" as defined in the act, means all the rights accruing to the owners of riparian property, including the following rights, subject to the public trust:

- (a) Access to the navigable waters.

***(Finding) Riparian owner access to navigable waters is not known to be adversely impacted, based on information in the application.***

- (b) Dockage to boatable waters, known as wharfage.

***(Finding) Same as in (a) above.***

- (c) Use of water for general purposes, such as bathing and domestic use.

**(Finding) Same as in (a) above.**

- (e) Title to natural accretions.

**(Finding) Same as in (a) above.**

Section 30106, of Part 301, further states in a pertinent part:

Rule (2)

- (2) In passing upon an application, the department shall consider:

- (a) The possible effects of the proposed action upon the inland lake or stream;

**(Finding) The proposed road has 22 stream crossings, 155 of which are existing. The applicant ~~is looking at~~ ~~has been asked to look at~~ ways to further reduce impacts of the proposed route by the use of more bridges, and shorter, wider span culverts with headwalls to minimize impacts of the proposed route. 7 of the proposed stream crossings are new, potentially increasing fragmentation of wildlife and stream habitat. The proposed road would impact water quality at the stream crossings and result in introduction of invasive species along the route. The applicant has attempted to minimize the impact of storm water runoff by diverting the runoff away from entering directly into streams. The MDNR has suggested the applicant consider the use native grasses for all roadside plantings, survey for and remove invasive/exotic noxious plants, reduce road salt loads and examine calcium magnesium acetate or potassium acetate as an alternative to road salt.**

- (b) The waters from which or into which its waters flow;

**(Finding) Same as (a) above.**

- (c) The uses of all such waters, including uses for:  
(i) Recreation

**(Finding) The new road would open up additional recreational access to some streams, but conversely would result in more difficult or dangerous recreational stream access adjacent to the road due to the high profile of the proposed road, and heavy industrial traffic use. The road would eliminate current access from some existing two track roads and trails. Recreation would be negatively impacted by road noise.**

(ii) Fish

*(Finding) New stream crossings in road-less portions of the proposed route would result in impacts to fish. The applicant has proposed bank full span crossing structures to avoid fish passage **and stream fragmentation** issues. There would be replacements of existing undersized stream crossing structures with more appropriate spans, and a wider base, impacting more lineal feet of stream. The applicant is working on revising the design to shorten some culvert lengths and replace some proposed culverts with bridges to reduce stream impacts on the proposed route.*

(iii) Wildlife

*(Finding) The proposed road **would have** negative ecological impacts, with one of the greatest being potential impacts on wildlife. Impacts to wildlife would include habitat fragmentation, adverse impacts of road noise, direct habitat loss,*

*degradation of habitat, and the barrier effect of the road, which may isolate wildlife populations, and increase mortality.*

*The road is proposed to be constructed through an area with the highest moose population density in Michigan. The proposed road would negatively impact moose populations through negative effects on winter habitat, overall habitat fragmentation, and by increased mortality from vehicle strikes.*

*While the MDNR states a preference to limit impacts to currently existing roads, they have proposed a number of measures that could be used to minimize some of these impacts along the proposed road route. The applicant is working with MDNR to come up with **measures** to reduce impacts of the proposed road on fish and wildlife habitat and populations.*

(iv) Aesthetics

*(Finding) The new road will improve aesthetics for some and degrade it for others, depending on individual perspective.*

(vii) Local government

*(Finding) The proposed road would not impact use of water by local government.*

(viii) Agriculture

***(Finding) The proposed road would not impact the use of water for agriculture.***

(ix) Commerce

***(Finding) The proposed road would not impact use of water by commerce.***

(x) Industry

***(Finding) The proposed road would not impact use of water by industry.***

The department shall not grant a permit if the proposed project or structure will unlawfully impair or destroy any of the waters or other natural resources of the state.

***(Finding) Same as findings under Rule 2(a) of the administrative rules for Part 303, Wetlands Protection, and Rule 4 of the administrative rules for Part 301, Inland Lakes and Streams, below.***

#### Rule 281.814 Environmental Assessment

Rule 4. In each application for a permit, all existing and potential adverse environmental effects shall be determined and the department shall not issue a permit unless the department determines both of the following:

- (a) That the adverse impacts to the public trust, riparian rights, and the environment will be minimal.

***(Finding) The impacts to the public trust and the environment from the proposed road would not be minimal because less damaging alternative routes and construction methods with less aquatic resource impacts for the proposed route have not been ruled out at this time.***

- (b) That a feasible and prudent alternative is not available.

***(Finding) The application lacks sufficient information at this time to document that a less damaging feasible and prudent alternative route is not available.***

Rule 315, of Part 31, Water Resource Protection, Floodplains, requires that:

- (1) An encroachment in the floodway which, acting alone or in combination with existing or future similar works, may cause harmful interference shall not be approved. In making this determination, an analysis shall be made for a range of discharges up to and including the 100-year flood discharge modified to reflect changes in land use and development reasonably anticipated to occur within the watershed up to twenty years from the date of application.

**Finding:**

**Six of the twenty two stream crossings require a review under the Floodplain Regulatory authority found in Part 31 (Part 31). The department finds that the hydraulic analysis submitted for the six (6) crossings meet the criteria for conducting hydraulic analysis per Rule 315(1). In addition, the hydraulic reports submitted to the MDEQ as part of the application package meet the criteria for conducting and submitting a hydraulic report found in the MDEQ Land and Water Management Division Hydraulic Report Guidelines – October 2006 revision.**

- (2) A bridge or culvert, constructed or reconstructed, shall be capable of passing the 100-year flood without causing harmful interference.

**Finding**

**Rule 323.1311(g) defines harmful interference as causing an increased stage or change in direction of flow that causes, or is likely to cause damage to property, a threat to life or of personal injury, pollution, impairment or destruction of water or other natural resources.**

**The hydraulic reports submitted with the application show that the proposed structure crossing of Mulligan Creek will increase the 100-year flood stage upstream of the proposed crossings by 0.57 feet a distance of 424 feet upstream of the crossing. Affected property owner statements were sent by the applicant to the affected landowner and returned for the Mulligan Creek crossing. The applicants engineer has certified that there will be no harmful interference caused by this increase. The MDEQ concurs with this finding.**

**The hydraulic reports submitted with the application show that the proposed structures crossing of the Middle Branch of the Escanaba will increase the 100-year flood stage upstream of the proposed crossings by 0.10 feet 3,638 feet upstream of the proposed crossing. Affected property owner statements were sent by the applicant to the two affected landowner and one has been returned. The applicant indicated the second statement would be provided when the landowner signs the letter. The applicants engineer has certified that there will be no harmful interference caused by this increase. The MDEQ has not made a determination at this time as to whether this crossing meets the criteria under Part 31 for permit issuance since it has not received the letter from the second affected landowners.**

**The hydraulic analysis submitted for the remaining four (4) crossings, Dead River, Yellow Dog and the East Branch Salmon Trout River and Second River**

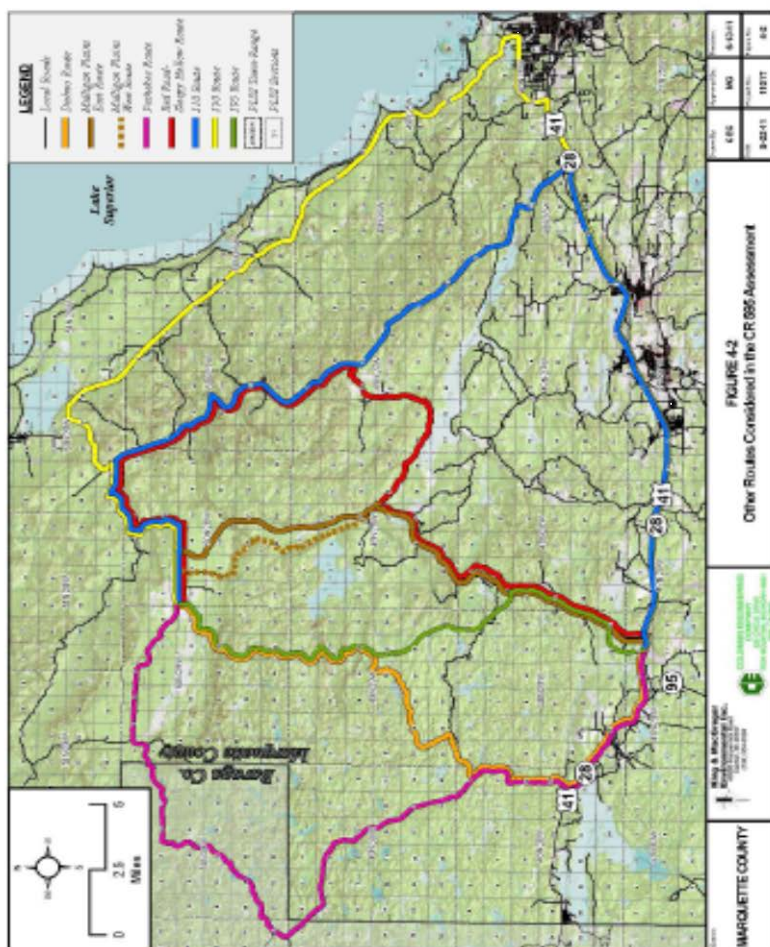
***indicate that the crossings are capable of passing the 100-year flood without causing harmful interference.***

- (3) An encroachment in the floodplain, landward of the floodway limits, which, acting alone or in combination with existing or future similar works, does not cause harmful interference may be permitted.

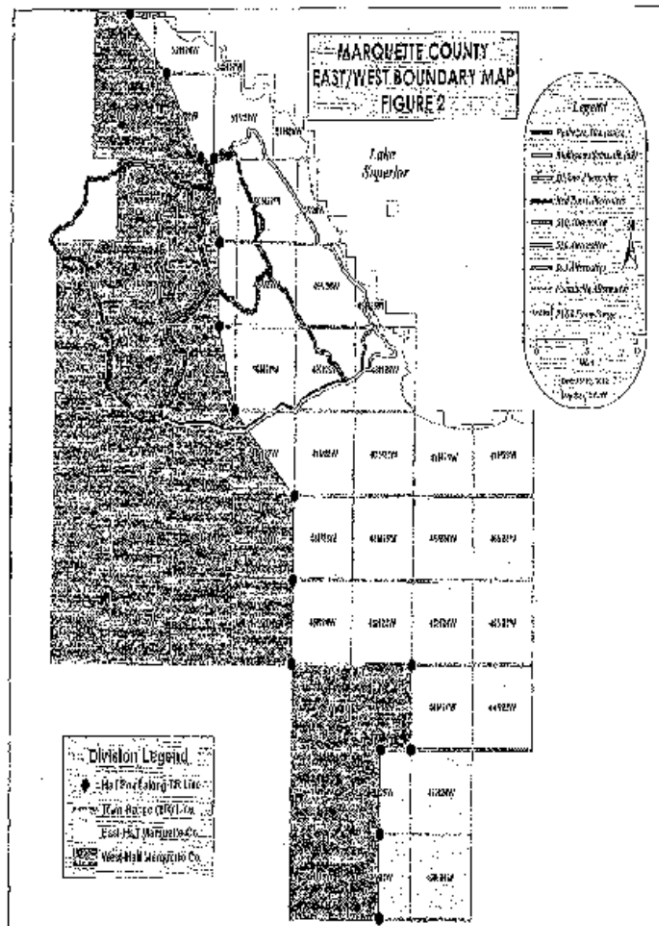
Finding:

***Based upon the information submitted with the applications, the proposed crossings will involve changing the natural grades within the vicinities of the crossings from approximately 5 feet to 20+ feet above natural grade. The hydraulic modeling demonstrates that the structures will be adequate to convey the flood flows up to the 100-year flood event without harmful interference (increased stage or direction of the flow of the river) or, if not, affected property owner statements were or will be obtained from the affected landowners.***

- (4) An encroachment in the floodplain, landward of the floodway limits, which, acting alone or in combination with existing or future similar works, does not cause harmful interference may be permitted.







## Typical Construction Costs

May 23, 2012

Costs can vary considerably depending on pavement thickness, soil conditions, utility conflicts, storm sewer requirements, land use, terrain, moving dirt or having to blast through rock.

- 1) MDOT US-41 near Baraga- \$2.9 million for 1.5 miles of road (\$1.93 million per mile), included \$260,00 for ROW costs, \$243,00 for engineering
  - Road was offset 0-100 feet
  - 5.5 inches of asphalt- 3 layers
  - Flat terrain
  - 1 cross culvert
  - Included re-building a railroad intersection
- 2) MDOT UP- average cost to reconstruct bituminous paving is \$956,000 per lane mile (or \$1.9 million per mile for a 2 lane road)
- 3) Marquette County- estimated cost to upgrade 0.66 miles of Triple A road is \$1.0 million (or \$1.5 million per mile for a 2 lane road. Includes preliminary engineering and construction engineering costs. Existing road will be reconstructed and upgraded to all season standards. Costs include drainage improvements and horizontal and vertical alignment improvements.
- 4) Marquette County estimated cost to upgrade 0.87 miles of County Road 601 is \$1.8 million (or \$2.1 million per mile). Existing narrow road will be reconstructed/widened to a two-lane all season standard road. Costs included flattening a steep hill, re-aligning 2 sharp curves, and maintaining 2-way traffic during construction
- 5) City of Marquette- McClelland Avenue- \$1.8 million for 0.48 miles of 2 lane road (\$3.8 million per mile)
  - Flat terrain, ½ upland, ½ wetland, wetland excavation for road fill
  - Include curbing and gutter and storm sewer costs, sidewalk, 2 traffic signals, heavy rock in road base, thick pavement for trucking, retaining wall to minimize wetland impacts
  - Does not Include \$100,000 for 2.5 acres of wetland mitigation
  - Includes cost for stream restoration
  - Does not include design costs

**Other County Projects in Lower Peninsula-** asphalt not as thick typically 3-4 inches

- 6) Ingham County- \$400,000-\$600,000 per lane mile for reconstruction (or \$800,000-\$1.2 million for a 2 lane road).
  - Design fees 7-12% of construction costs
  - Construction engineering 8-13% of construction
  - ROW cost varies widely- \$0.35 a sft for rural areas up to \$22 a sft in some urban settings
- 7) Allegan County- \$200,000 per mile on gravel roads with decent soils, minimal dirt movement, add \$140,000 per mile to add 3 inches of asphalt. (\$340,000 per mile)
  - Design fees \$8000 for a consultant
  - ROW 0-\$5,000
  - Estimating about \$1,000,000 for a new 1 mile section of paved all seasons road next year with \$20,000 for design engineering and \$50,000 for ROW.
- 8) Wexford County- (Generally about \$500,000 per mile) for a standard new county road with decent soils, nothing special- not including engineering or ROW.
  - \$300,000-\$400,000 per mile to reconstruct a standard generic road not hills or big cuts, no undercuts or swamp work
  - \$900,000 per mile estimate for a current urban reconstruct job out for bid with a bridge and cul-de-sac
  - \$3 million per mile to reconstruct road in downtown Cadillac
  - \$6 million per mile to build US 131 freeway around Manton not including bridges
- 9) Eaton County- (\$2.6 million bid for new 1 mile section of road), part 3 lane, part 2 lane, some turn lanes and side walks
  - Minimal fill some cut, no culverts or bridges, 6 inches of asphalt
  - Does not include ROW costs- they already owned
  - Includes \$800,000 for sound wall
  - Does not include 10% extra for design
  - Does not include 10-15% extra for construction oversight
- 10) Finkbeiner Road- Barry County rural area- 2 distinct phases (costs include construction, ROW, engineering, construction engineering, did not include staff time or attorney fees)
  - a. \$5.3 million or (\$1.5 million per mile) -3.48 miles of 2 lane rural road reconstruction and upgrade/widening, included 0.37 miles of upgrade of flat two track road section and one large section of wetland fill. About 1 acre of wetland impact.
  - b. \$5.5 million or (\$7.0 million per mile)- 0.79 miles of 2 lane road includes 0.47 of new road with about 20 feet of fill, 250 feet 2 span bridge and a 145 foot single span bridge.. About 0.5 acres of wetland impact

- 11) **Federal Highway Administration**- cost based on 2003 report adjusted for 2006 dollar, differences in factors include terrain type, rural versus Urban, high cost versus low cost state, concrete versus asphalt, pavement thickness, new construction versus adding new lanes. Costs include bridges, interchanges, and environmental issues for a normal project.
- a. Adding a single lane to an existing highway in rural areas- \$1.6 million to \$3.1 million per lane mile (\$3.2 million to \$6.2 million per mile for a 2 lane section).
  - b. New construction- the cost to construct one lane mile of a typical 4 lane divided highway in a rural area is \$3.1 million - \$9.1 million per lane mile (\$6.2 million to \$18.2 million per mile for a 2 lane section).